

## CLAIMS

We claim:

- 5           1. A method for presenting a runtime environment component service by a first computer system to a second computer system over a communication network, said method being performed by said first computer system and comprising:
- 10                 generating a user interface infrastructure, on said first computer system, to receive graphic user interface events from said second computer system and to send remote graphic user interface commands to said second computer system; and
- 15                 using said user interface infrastructure to initialize said runtime environment component service wherein said runtime environment component service sends graphic user interface commands to said user interface infrastructure.
- 20           2. The method of Claim 1 further comprising:
- receiving by said user interface infrastructure a remote input action event via said communication network, said remote input action event being generated in said second computer
- 25                 system by a lightweight component corresponding to said runtime environment component service.
- 30           3. The method of Claim 2 further comprising:
- transmitting an input event to said runtime environment component service by said user interface infrastructure in response to said remote input action event.
- 35           4. The method of Claim 3 further comprising:

processing said input event by said runtime environment component service.

5. The method of Claim 4 further comprising:

5       generating a graphic user interface command to said user interface infrastructure by said runtime environment component service.

6. The method of Claim 5 further comprising:

10       transmitting a remote graphic user interface command to said lightweight component by said graphic user interface infrastructure in response to said graphic user interface command.

15       7. A method for presenting a runtime environment component service by a first computer system to a second computer system over a communication network, said method being performed by said first computer system and comprising:

20       receiving a remote input action command for a runtime environment component service via said communication network, said remote input action command being generated in said second computer system by a lightweight component corresponding to said runtime environment component service;

25       transmitting a local input action command to said runtime environment component service in response to said remote input action command;

30       processing said local input action command by said runtime environment component service;       generating a local output command by said runtime environment component service for a graphical user interface; and

35       transmitting a remote output command to said lightweight component in response to said local output command.

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wherein said command is from a component executing  
on a user device; and

issuing an instruction to create an instance  
of a remote frame window on said user device.

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15. The method of Claim 14 further comprising:

generating an instance of a local window on  
said computer system by said service, wherein said  
local window issues remote instructions to said  
remote window frame in response to instructions  
from said runtime environment component service.

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16. The method of Claim 15 further comprising:

querying said remote frame window by said  
local window to determine properties of said remote  
frame window.

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17. The method of Claim 15 further comprising:

generating, on said computer system, a local  
frame for said local window.

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18. The method of Claim 17 further comprising:

receiving, by said local frame, a command from  
said user device to load a document.

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19. The method of Claim 18 further comprising:

issuing, in response to said command to load a  
document, a command by said local frame to said  
runtime environment component service to create an  
instance of a runtime environment component service  
window on said computer system.

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20. The method Claim 19 further comprising;

issuing a command by said local frame to said  
runtime environment component service to load said

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21. The method of Claim 20 further comprising:  
5           issuing a command from said runtime  
environment component service to said local window  
to display said document.

22. A method for enabling a user device to run a  
10 runtime environment component on another computer, said  
method comprising:  
            running a browser on said user device; and  
            running a lightweight component within said  
browser, wherein said lightweight component  
15 receives user input actions on said user device and  
generates corresponding user interface events to  
said another computer for processing by said  
runtime environment component.

20 23. The method of Claim 22 further comprising:  
            downloading lightweight component into said  
user device.

24. A computer program product comprising computer  
25 code comprising:  
a remote frame window class comprising:  
            a remote output device interface; and  
            a remote frame window interface.

30 25. The computer program product of Claim 24  
wherein said computer code further comprises:  
            a bean frame class comprising a frame  
interface

35 26. The computer program product of Claim 24  
wherein said computer code further comprises:

a bean window class comprising:  
an event handler interface; and  
an window peer interface.

5           27. The computer program product of Claim 24  
wherein said computer code further comprises:  
an abstract windowing toolkit.

10           28. A computer program product comprising computer  
code for a method for presenting a runtime environment  
component service by a first computer system to a second  
computer system over a communication network, said  
method being performed by said first computer system,  
said method comprising:

15           generating a user interface infrastructure, on  
said first computer system, to receive graphic user  
interface events from said second computer system  
and to send remote graphic user interface commands  
to said second computer system; and

20           using said user interface infrastructure to  
initialize said runtime environment component  
service wherein said runtime environment component  
service sends graphic user interface commands to  
said user interface infrastructure.

25           29. A computer program product comprising computer  
code for a method for presenting a runtime environment  
component service by a first computer system to a second  
computer system over a communication network, said  
30           method being performed by said first computer system and  
comprising:

receiving a remote input action command for a  
runtime environment component service via said  
communication network, said remote input action  
35           command being generated in said second computer

system by a lightweight component corresponding to  
said runtime environment component service;  
transmitting a local input action command to  
said runtime environment component service in  
5 response to said remote input action command;  
processing said local input action command by  
said runtime environment component service;  
generating a local output command by said  
runtime environment component service for a  
10 graphical user interface; and  
transmitting a remote output command to said  
lightweight component in response to said local  
output instruction.

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